



Hilcorp Alaska, LLC

Post Office Box 244027
Anchorage, AK 99524-4027

3800 Centerpoint Drive
Suite 1400
Anchorage, AK 99503

Phone: 907/777-8300
Fax: 907/777-8301

April 26, 2017

Geoff Merrell
State On-Scene Coordinator
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Re: Middle Ground Shoal Platform, Natural Gas Pipeline Release
Middle Ground Shoal Gas Leak Sampling and Monitoring Plan Summary Report
Sampling Period #6 ending 04/25/2017

Dear Mr. Merrell:

Hilcorp Alaska, LLC ("Hilcorp") submitted the Middle Ground Shoal Gas Leak Sampling and Monitoring Plan ("Plan") to the Department of Environmental Conservation ("Department") on March 8, 2017. Preliminary approval to implement the Plan was provided by the Department on March 10, 2017. As described in Section 3.2 of the Plan, Hilcorp is submitting this sixth weekly summary report to the Department.

In an effort to provide data to the Department as quickly as possible, a complete and thorough quality control evaluation has not been completed at this time. Please note that all data presented in this report is preliminary and should be considered as such until a quality control evaluation is completed. Hilcorp will continue to evaluate data quality and will notify the Department of any significant issues as soon as possible.

Fish and Wildlife Monitoring:

On April 19 and April 21, one Cook Inlet Spill Prevention & Response, Inc. (CISPRI) protected species observer and one wildlife observer professional from International Bird Rescue conducted an extended overflight of approximately 20 square miles (within a 5-mile diameter circle) surrounding the gas leak location. The helicopter was able to fly at approximately 350-400 feet altitude. To avoid incidental harassment of marine mammals, altitude would have been increased to 1500 feet, but only in the case where marine mammals were spotted. Flight circles are approximately 0.5 miles apart. Flight conditions and visibility were good during both flights.

No marine mammals or fishes were observed within the 20 square mile area during either overflight. Various gulls were seen flying in the area and one petrel was seen on the water.

In coordination with the U.S. Corps of Engineers and the National Marine Fisheries Service, mitigation measures were established for the use of a CaviBlaster® during oil pipeline inspection efforts. An additional protected species observer was positioned onboard the dive vessel to monitor for marine

mammals on April 21, 2017 to coincide with the use of the CaviBlaster®. A harbor porpoise was identified about 1.5 miles from the beach at east forelands approximately 1 hour before the CaviBlaster® was used. Please note that the harbor porpoise was not spotted within the 20-mile radius of the leak location. No other marine mammals were identified in the area.

Wildlife observer reports are provided in Attachment A. The next fish and wildlife monitoring event is planned for today (April 26). The last fish and wildlife monitoring event is scheduled for April 28, 2017, which corresponds with two weeks following the temporary repair of the pipeline.

Water Quality Sampling:

The water quality buoy was successfully deployed two times on April 19, 2017. To prevent interference with active pipeline repair operations, water quality buoy drifts avoided the immediate area of the gas leak. The buoy was equipped with sensors to monitor temperature, pH, salinity, ORP, conductivity, relative conductivity, and concentrations of dissolved oxygen and methane. During Sampling Period #6, the buoy was tethered to the deck to allow for periodic adjustment of the buoy's travel path. This method of deployment reduced the depth of the instruments in the water column to 1.5, 6.5, and 12 meters below the water surface.

Drifts #1 and #2 passed 32 meters and 19 meters from the gas release, respectively. Water quality sampling during Sampling Period #6 showed limited variability in dissolved oxygen, methane, and carbon dioxide concentrations. The lowest dissolved oxygen reading observed (11.5 mg/L) was well above the water quality standard specified under 18 AAC 70 for marine waters. The highest methane concentration observed was 0.11 mg/L at 6.5 meters below the water surface. No violations of state water quality standards were identified.

Three four-gas meters were used to monitor air conditions continuously to establish a safe work zone during all vessel-based sampling efforts. Lower Explosive Limit (LEL) readings from the meters did not exceed 0%.

A summary report and additional safety documentation for the water quality sampling efforts are provided in Attachment B. The next weekly water quality sampling effort occurred yesterday (4/25). Data is currently being downloaded and evaluated and will be submitted to the Department as part of the next weekly summary report on May 3, 2016.

Acoustic Monitoring:

Acoustic monitoring described in the Plan was conducted previously on Sunday March, 27, 2017. A second acoustic monitoring effort was initiated to measure underwater sound pressure levels from the use of a CaviBlaster® during inspection of the oil pipeline. Prior to beginning inspection efforts, Autonomous Multichannel Acoustic Recorders (AMARs) were placed on the seafloor at two fixed distances from the oil pipeline on April 7, 2017. The AMARs continuously recorded acoustic data in the Cook Inlet with ice coverage ranging between 0-1 tenth until the CaviBlaster® was used on April 22, 2017. The AMARs have been retrieved and data is currently being downloaded and evaluated. A summary of acoustic data will be provided to the Department once it is available.

Geoff Merrell
April 26, 2017
Page 3 of 3

If you have any questions or concerns regarding this letter, please feel free to contact either myself or the appropriate Hilcorp staff member as we continue to work with you on our ongoing response to this event.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill", written over a horizontal line.

William G. Britt, Jr.
Environmental Manager

Attachments:

- Attachment A: Fish and Wildlife Monitoring Summary Reports
- Attachment B: Water Quality Sampling Summary Report

ATTACHMENT A
FISH AND WILDLIFE MONITORING SUMMARY REPORT

April 19, 2017 Report
Hilcorp Cook Inlet Wildlife Surveys
By Wildlife Observer, Responder, IBR

I arrived at Ross Aviation at 6:15 am and took the Hilcorp charter from Anchorage to Kenai, landing in Kenai at 8:00 am. I picked up a Hilcorp pool car at the Kenai hangar. Weather was calm, sunny, clear and cool, 38 degrees.

I ate breakfast, checked for any recent relevant eBird sightings in the upper Cook Inlet area, noting nothing specific for Kenai. Both Homer and Seward were reporting more migratory birds arriving every day. I got gas for the car. I then checked the local birding sites near Kenai downtown. I visited the Kenai River flats area about 9:00 am on a fairly high tide. There were about thirty gulls, a dozen Canada Geese and five Greater White-fronted Geese. I then went to the Kenai Estuary-Dock overlook. There were approximately a thousand gulls. The grassy flats between the Kenai River channels were covered in gulls, Herring, Glaucous-winged, Mew and a few Black-legged Kittiwakes. There were also approximately 100 geese and ducks on the far southern shore of the Kenai River bank. Without a spotting scope I could only differentiate Canada Geese, Greater White Fronted Geese, Common Mergansers, One Bufflehead, Common Goldeneye, Green-winged Teal and Common Goldeneye. I drove north arriving at the Nikiski dock area at 10am. No marine birds were seen around the Nikiski dock area. There were 2 cormorants, 18 ravens, 4 Bald Eagles, one Fox Sparrow, five Common Murres and two Black Scoters along the water's edge to the north of the dock area. *Note: On flight home, two men who were on conducting water samples noted they had seen three Beluga Whales at the Nikiski dock at 7:30 am.

I arrived at OSK hanger at 10:15 am. I met Crystal who checked my ID, and gave me the safety sheet, and fitted me in a survival suite and life vest. I met the protected species observer, Spill Tech from CISPRI who was there to observe marine mammals. We started the heli survey at 11:06 am. Slack tide was at 11:20 am.

We were able to fly an average of 350 feet above the sea, as the methane leak has been repaired. The sky was completely clear, and there were only a few random pieces of ice caught in a few of the tidal current eddy lines. Approximately 99% of the sea was clear of ice. I sat on the outside circling window (left) as we made clockwise circles around the leak area (which was no longer visible). The outer ending GPS point was Latitude 60 degrees, 48', 15.5" N and Longitude 151 degrees, 35', 33.44" W (taken by Dave CISPRI). No marine mammals were observed. On Herring Gull was observed flying from the south to the north through the middle of the area. Two Mew Gulls were observed flying the western side of the area from north to south. One Leach's Storm-Petrel was observed "walking on water" on the western side of the flight area. We did one sweep right next to

the Nikiski shoreline and 10 Glaucous-winged gulls were seen flying from south to north along the shoreline.

Once done with the survey, we flew outside the area westward and landed on the Omega pad to deliver food. We then flew back east directly to the Nikiski dock, and the OSK helipad. Arriving at 12:54 pm.

I also observed a moose, Black-capped and Boreal Chickadees, Pine Siskin, Redpolls, and a Three-toed Northern Woodpecker at Captain Cook State Recreation Area. And a Kingfisher at the Erik Hansen Park in Old Town.

The Kenai Estuary/Dock Viewing area had 7 Sandhill Cranes, 30 mallards and 67 Northern Pintails.

The Kenai Flats was very active in the afternoon. Approximately 1000 geese were pushed into flight by a large bald eagle. Ponds east of the bridge had 50 Mallards, 30 Northern Pintail and 12 American Widgeon.

Heard a Golden-crowned Kinglet at Cunningham Park. And 12 Common Goldeneye were on the river at that location. There was also a Kingfisher at Hansen Boy Scout Park and a Rough-legged Hawk at Veronica's.

I departed Kenai at 5:10 pm and arrived at Ross Aviation hangar in Anchorage about 5:38 pm.

April 21, 2017 Report
Hilcorp Cook Inlet Wildlife Surveys
By Wildlife Observer, Responder, IBR

I arrived at Ross Aviation at 6:20 am and took the Hilcorp charter from Anchorage to Kenai, landing in Kenai about 7:30 am. I picked up a Hilcorp pool car at the Kenai hangar. Weather was partly cloudy with a light and variable wind.

I ate breakfast and checked for any recent relevant eBird and Akbirding Yahoo sightings in the upper Cook Inlet area (none). I checked weather sites, showing variability in wind speed (4-11K) and in wind direction (ENE, NE, NNE). This held true even at 11:37 when I wrote down the final weather.

I visited the Kenai River Bridge and Flats area from 8:10-8:30 am. There were significantly less geese and ducks than on 4/19/17. Two Sandhill Cranes were visible in the distance

towards the ocean. At the Kenai River Estuary from 8:40-9:00 there were similar numbers of gulls (a thousand), increased amounts of river snow/ice in the river itself, about 20 miscellaneous distant ducks, and 60+ Bald Eagles. I then drove to the south side of the river by the Cannery and looked for shorebirds (none found). I stopped at the Erik Hansen Scout park to check the river mouth, the Kingfisher was present with three crows. I then checked the beach off Spruce Street. I observed a pair of Common Mergansers, 4 Red-necked Grebes, 2 Great and 1 Lesser Scaup. At 11:30-11:50, there were no marine birds or mammals seen around Nikiski dock area.

I arrived at OSK helipad about 11:55 am and met the protected species observer from CISPRI. We started the heli survey at 12:30 pm although slack tide was at 1352 pm. We had been asked to fly earlier than originally planned to be in the air while the boat and crew were on the water preparing to use the CaviBlaster. PSO received a message that CISPRI observed a harbor porpoise from the boat. After flying west and landing on the Steelhead Platform to deliver items, we flew back to the boats location and did several tight circles in the area looking for porpoise. None were observed from the air.

We were able to fly at 450' ASL because the methane leak had been fixed. The sky was partly overcast and continued to clear as we performed the survey. There was no ice apparent. I sat on the outside circling window (left) as we made clockwise circles around the previous leak area. The outer ending GPS point was Latitude 60, 46.4694'N, and Longitude 151, 30.5447W (taken by CISPRI). Only gulls were observed in the area. Two Glaucous-winged Gulls flew from the south to the north through the middle of the flight area; three Mew Gulls were sitting on the water between Platform A and C for the first three circles, but then flew away; and 3 Glaucous-winged Gulls were flying next to the shore by the Helipad as we landed. One hundred Canada Geese were observed just west of the area, flying at approximately 1000 feet. No marine mammals were observed from the air. The flight ended at 2:00 pm.

I departed Kenai at 4:50 pm and arrived at Ross Aviation hangar in Anchorage about 5:20 pm.

Cook Inlet Operations - Protected Species Observer Effort Log

Project ID:

PSO Helcorp

Name:

Protected Species Observer

Initial:

PSO

Vessel Name:

Hilcorp Helo

Effort Log Page #:

MMO-009

[illegible]

Cook Inlet Operations - Protected Species Observer Effort Log

Project ID: Hilcorp Pipeline Repair

Name: Protected Species Observer

Initial: PSO

Vessel Name:

Effort Log Page #:

MMO-001

[illegible]

COOK INLET OPERATIONS
Protected Species Sighting Notification Form



If you are a Protected Species Observer (PSO), contractor, or visitor, you are asked to complete this form every time you see a marine mammal in Cook Inlet.

DATE: 21 APRIL 2017

SIGHTING NUMBER: _____
(LEAVE BLANK. ASSIGNED BY HSE MGR.)

TIME: 1330

(OBSERVER INFO)

NAME OF OBSERVER: Protected Species Observer PHONE: 907-776-5129

OBSERVER'S LOCATION: 60.45.994N 151.26.365 W

COMPANY AFFILIATION: CISPR

(MARINE MAMMAL INFO)

SPECIES NAME: HARBOR PORPOISE

IDENTIFYING CHARACTERISTICS: 1) DARK
2) HOOKE DORSAL FIN

NUMBER OF ANIMALS: 1 COLOR: DARK

NUMBER OF ADULTS: 1 NUMBER OF CALVES: 0

WHALE'S LOCATION: SAME AS OBSERVERS
(lat/long helps quite a bit if possible)

WHALE'S DISTANCE FROM SHORE: 1.25/1.75 mile SPEED: 8 KNTS

WHALE'S DISTANCE FROM OBSERVER: 300 M.

NEAREST HIGH TIDE: 1330 NEAREST LOW TIDE: _____
(IF TIDES ARE KNOWN, AND FROM WHAT SOURCE INFO COMES FROM)

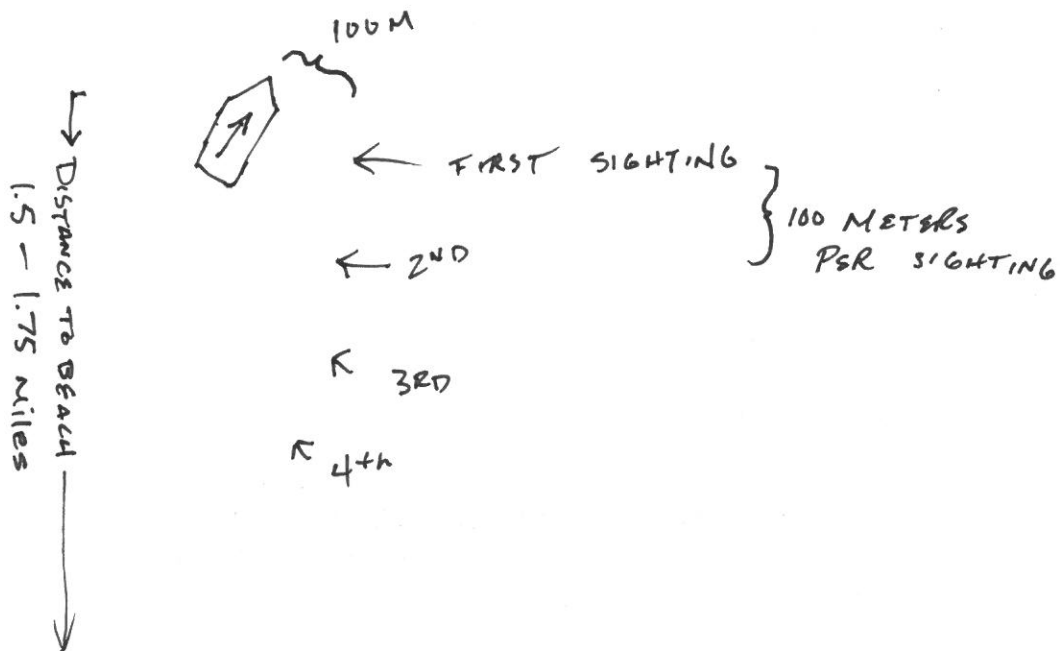
(WHALE BEHAVIOR & OTHER ACTIVITY)

MARK WITH AN 'X' OR 'V'

- | | |
|---|---|
| <input checked="" type="checkbox"/> Traveling in a straight line | <input type="checkbox"/> Slow surfacing |
| <input type="checkbox"/> Not traveling | <input type="checkbox"/> Feeding |
| <input type="checkbox"/> Moving in multiple directions | <input type="checkbox"/> Chasing fish |
| <input type="checkbox"/> Spacing of whales | <input type="checkbox"/> Vocalizations |
| <input type="checkbox"/> Loose <input type="checkbox"/> Tight | <input type="checkbox"/> Other behavior (please describe below) |
| <input type="checkbox"/> Other wildlife near whales | <u>QUICK SURFACE ROLL, SIGHTED 4</u> |
| <input type="checkbox"/> Birds | <u>TIMES, EACH TIME 100 M FURTHER AWAY</u> |
| <input type="checkbox"/> Other marine mammals (please describe below) | <u>DIAGRAM ON BACK</u> |
| <u>ALONE / ONLY SAW ONE AT A TIME</u> | |

RETURN COMPLETED FORM WITH LOGBOOK ENTRIES TO THE COMPLIANCE CONTRACTOR FOR MARINE CONSTRUCTION OR TO THE DUTY ENVIRONMENTAL TECH MEDIC ABOARD THE PLATFORM/RIG.

Please describe and draw a diagram showing the relative location of the whales in relation to your position. Include as much information as possible, including: distance from shore, distance from any vessels in the area including your own and the direction the whales were traveling. Any photographs if taken, please consider including them with this notification form!



BEACH @
EAST
FORELANDS

Photograph Log



Photos were taken the vicinity of the leak with a view of Platform A. Flight circles are approximately 0.5 miles apart. The still water has been conducive to detecting flight or dive movements of wildlife.

ATTACHMENT B
WATER QUALITY SAMPLING SUMMARY REPORTS

Cook Inlet Methane Pipeline Leak Area

Water Quality and Air/Water Interface Monitoring

Weekly Report #6

Prepared by SLR International Corporation (SLR)

Report Date: 4-25-2017

1.0 OVERVIEW

The sixth water quality monitoring event was conducted from aboard the Offshore Service Vessel (OSV) Resolution during this reporting period using the approaches and methods described in the ADEC-approved plan (SLR 2017a). There was no air/water interface sampling this reporting period.

Safety of the vessel and crew was top priority during the monitoring activities. The quantity and location of sampling events were determined by site and weather conditions. The data presented herein is preliminary, subject to further review and verification by SLR International Corporation (SLR).

The revised location of the methane leak provided by Hilcorp prior to the first monitoring event on March 18 was used for the purposes of monitoring and reporting. This revised location and corresponding water depth is:

- Latitude 151°26'01.84"W, Longitude 60°46'35.68"N
- Easting 1384137.82, Northing: 2478537.39
- Water Depth (MLLW) = 21.18 meters (69.51 feet)

This location is referred to as the Methane Release Point (MRP). Initial estimates of the leak rate ranged from 203 to 300 thousand cubic feet per day (MCFD). On March 13, Hilcorp reduced the pressure in the line and reported the gas flow rate from the leak was 193 to 215 MCFD. On March 25, 2017, the leak rate was further reduced to 85 to 115 MCFD. On April 10, the flow rate was further reduced to a reported rate of 78 to 108 MCFD. On April 13, one day after the monitoring event discussed in this report, the leak was stopped by applying a temporary clamp over the hole in the gas line. The temporary clamp was removed on April 19 during the slack tide around mid-day to allow for the installation of the permanent clamp. This operation took several dives during slack water. During the installation of the permanent clamp there was intermittent gas leakage from the pipeline as it could only be partially tightened. The permanent clamp failed to stop all the leakage and the temporary clamp was re-installed on April 20.

As discussed in Section 2.2 of this report, based on the preliminary data review completed to date, the dissolved oxygen (DO) concentrations measured during this event and the previous events did not violate the Alaska Water Quality Standards (AWQS) as established in Title 18 Alaska Administrative Code (AAC), Chapter 75 (18 AAC 70).

2.0 WATER QUALITY MONITORING

2.1 Activities Completed

Water quality monitoring and sampling was conducted on April 19, 2017, which coincided with a neap tide event. The monitoring period covered portions of an ebb and flood tide. The NOAA tide predictions at the nearby East Forelands area predicted a high tide at 10:57 with height of 4.94 meters above mean lower low water (MLLW) on April 19. At the MRP site, the tide changes about 50 minutes after NOAA tidal predictions for the East Forelands area, and drifts were planned accordingly. The field team consisted of one SLR and one Kinnetic Laboratories, Inc. (KLI) scientist. The field team members (samplers) were Alaska Department of Environmental Conservation (ADEC) qualified samplers, per 18 Alaska Administrative Code 75.

The data collection activities followed the Water Quality Cook Inlet Alaska Methane Pipeline Leak Water Quality Sampling Plan (WQ Plan), (SLR 2017a). The primary data collection method utilized a drifting instrumented buoy to obtain water quality parameters in the area of interest. The drifting buoy had multiple instruments suspended along a line at three depth intervals (2, 7 and 12.5 meters) as depicted on Figure 1. The primary instruments are listed below:

- SeaBird Electronics, SBE 19 plus V2 SeaCAT- conductivity, depth, temperature (CTD), with dissolved oxygen (DO), pH, and turbidity.
- Pro-Oceanus Mini Methane
- Pro-Oceanus Mini Carbon Dioxide
- PME MiniDOT
- Garmin WAAS differential global positioning system (mounted on buoy and used to track the buoy's position during a monitoring transect)

Reported instrument depths below the water surface (bws) are based on length of line from the bottom of the buoy to the instrument(s). The buoy drifted with the current so the instrument string maintained a near vertical position during deployment. This was verified by review of the depth reading obtained by the CTD, which was located at the end of the line. As with Weeks 4 and 5, during Week 6 the buoy was tethered to the deck of the boat, allowing for periodic adjustment of the buoy's travel path throughout the drift to better intercept the MRP. This method of deployment raised the buoy 0.5 meters above the water surface, and thus reduced the depth of the instruments in the water column a similar amount. Monitoring depths for this reporting period were approximately 1.5, 6.5, and 12 meters bws. A summary of the parameters measured by each instrument and frequency is provided in Attachment A, Table A-1.

During event 6, the site conditions impacted the activities completed as well as the collection of data, as noted below:

- On April 19, a dive crew was conducting repair work on the pipeline, primarily around slack tide. The MRP area needed to be avoided by other vessels when divers were working. In addition, three buoys were tethered to the pipeline 5 feet in either direction of the leak to mark its location. Consequently, water quality buoy drifts had to avoid the immediate area to prevent entangling the multiple buoy lines.
- No sea ice was encountered during the sixth event.
- Air temperatures varied between 2 and 10 °C with water temperatures typically about -0.3 °C.
- The replacement DO sensor installed on the SeaBird CTD system during Week 4 continued to operate satisfactorily.
- The MiniCH₄ and MiniCO₂ sensors at both depths were mounted with the membrane facing the water's surface as precautionary measure to prevent gas bubbles from the MRP becoming trapped within the enclosure surrounding the membrane. Prior to the Week 4 event, these sensors had been mounted with the membrane facing toward the seafloor. Starting on Week 5, the deeper (12 meter) sensor was mounted upward as well.

Two water quality buoy drifts (monitoring transects) were completed through the area surrounding the MRP on April 19 at differing tidal stages. The duration of each water quality buoy drift varied from approximately 105 to 70 minutes. The average drift speed varied between 3.1 and 4.2 kilometers per hour. Table A-2 in Attachment A provides a summary of the buoy deployments. Attachment A, Figure A-2e illustrates the path of the two buoy drifts.

Drift #1 occurred during the flood tide. The buoy was deployed approximately 1,500 meters up current of the MRP and was allowed to drift down current approximately 5,427 meters, with periodic adjustment using the vessel to guide it safely past the MRP. The buoy passed within 32 meters of the MRP about 21 minutes into the drift. During this drift the temporary clamp was installed and no gas was bubbling around the MRP.

Drift #2 occurred during the flood tide. The drift began approximately 900 meters up current of the MRP, and the buoy drifted down current a total of 4,766 meters. The buoy passed within 19 meters of the MRP about 18.5 minutes into the drift. After Drift #1 and prior to Drift #2, the temporary clamp on the leak was removed, and permanent clamp not completely installed. During Drift #2 there was some gas leakage from the pipeline and bubbles were observed at the water surface near the MRP. The initial gas leakage started approximately 2 hours before the drift occurred (coinciding with slack tide).

No CTD casts were performed during Week 6.

No water samples for laboratory analysis were collected during Week 6.

A photograph log documenting the data collection methods and site conditions during Week 6 is included in Attachment A.

2.2 Summary of Results

2.2.1 Buoy Transects-Week 6

Data plots for the primary parameters of interest (DO, CH₄ and CO₂) for the water quality buoy drifts completed on April 19 are provided on Figures A-9.1 and A-9.2 in Attachment A.

- Dissolved Oxygen- The lowest DO value recorded after the sensor had time to stabilize and passed the MRP was 11.5 mg/L during Drift #1, and 11.4 mg/L during Drift #2. There was no significant drop in DO concentrations recorded by the sensors as they passed the MRP, and measurements from each sensor were relatively stable throughout the drift (Attachment A, Figures A-9.1a and A-8.2a). During Drift #2 the vessel made a slight course adjustment about 22 minutes into the drift, which caused the instrument string to be dragged upward in the water column with the increased current. This activity coincided with a slight (+/- 0.1) fluctuation in the DO values.
- Dissolved Methane: The maximum CH₄ concentration recorded was 0.11 mg/L at the 6.5 meter depth during both drifts. The sensor at 12 meters recorded values about 0.05 mg/L less than the sensor at 6.5 meters which has been a typical pattern observed during the monitoring events. The recorded CH₄ concentrations did not show a noticeable (sharp) increase as the sensors passed the MRP, and were relatively stable and consistent throughout the two drifts (Attachment A, Figure A-9.1b and A-9.2b). Overall, the recorded CH₄ concentrations were in the lower range of concentrations measured to date during the project, and similar to the previous week.
- Dissolved Carbon Dioxide - CO₂ concentrations recorded during Drifts #1 and #2 did not show any sharp upward fluctuation as the buoy passed the MRP (Figure A-9.1c and Figure A-9.2c in Attachment A). The recorded concentrations varied the most during the initial 10 minutes of each drift and prior to passing the MRP, presumably as the instrument equilibrated with the water conditions. Except for a few outliers, the measured concentrations were between 0.8 and 1.2 mg/L which is consistent with the values recorded each week during the project.

As during previous weeks, the lowest DO concentration measured during both drifts was well above the most stringent regulatory limit for DO in marine waters established in 18 AAC 70. The 18 AAC 70 Alaska Water Quality Standards for marine waters state the surface DO concentration in coastal waters may not be less than 6.0 mg/L for a depth of one meter except when natural conditions cause this value to be depressed. DO may not be reduced below 4 mg/L at any point beneath the surface. DO concentrations in estuaries and tidal tributaries may not be less than 5.0 mg/L except where natural conditions cause this value to be depressed.

2.2.2 Laboratory Results

There were no new laboratory sample results received for dissolved CH₄ and CO₂ this reporting period. All results for samples collected to date have been previously reported. The next water sampling event is planned for the week of May 1, the final planned week of monitoring.

2.3 Activities Planned for the Next Sampling Event

The next water quality sampling event is planned for April 25, 2017. Planned activities include:

- Conducting deployments of the water quality buoy at varied tidal conditions, with deployments under flowing conditions.

These planned activities may need to be modified due to site conditions and logistics.

3.0 AIR/WATER INTERFACE MONITORING

3.1 Activities Completed

No air/water interface monitoring occurred during this reporting period.

3.2 Preliminary Summary of Results

No air/water interface monitoring occurred during this reporting period.

3.3 Activities Planned for the Next Sampling Event

The next air / water interface sampling event is planned for May 2, 2017. Planned activities include conducting deployments of the Air / Water Interface buoy in the vicinity of the MRP. These planned activities may need to be modified due to site conditions and logistics.

REFERENCES

SLR International Corporation (SLR). 2017a Water Quality Sampling Plan. Cook Inlet Alaska Methane Pipeline Leak, March 2017.

SLR. 2017b. Air/Interface Sampling Plan. Cook Inlet Alaska Methane Pipeline Leak, March 2017

ATTACHMENT A:

PHOTOGRAPH LOG:

Water Quality and Air/Water Interface Photograph Log (April 19, 2017)

TABLES:

Table A-1: Water Quality Buoy Instrumentation Summary, April 19, 2017

Table A-2: Summary of Water Quality Buoy Drifts

FIGURES:

Figure A-1: Water Quality Monitoring Buoy Schematic (April 19, 2017)

Figure A-2e: Water Quality Monitoring Week 6 (April 19, 2017), Buoy Drift Tracks

Week 5 Data Plots:

Figure A-9.1a: Buoy Drift #1, April 19, 2017, Dissolved Oxygen

Figure A-9.1b: Buoy Drift #1, April 1, 2017, Dissolved Methane

Figure A-9.1c: Buoy Drift #1, April 19, 2107, Dissolved Carbon Dioxide

Figure A-9.2a: Buoy Drift #2, April 19, 2017, Dissolved Oxygen

Figure A-9.2b: Buoy Drift #2, April 19, 2017, Dissolved Methane

Figure A-9.2c: Buoy Drift #2, April 19, 2017, Dissolved Carbon Dioxide

Cook Inlet Water Quality and
Air/Water Interface Sampling
Photo Log: Week 6
4-19-17



Photo 1: Typical conditions during Week 6, no waves or ice were encountered.

Date:
4/19/2017



Photo 2: Instruments being kept in tub of seawater to keep them as close to in-situ conditions as possible.

Date:
4/19/2017



SITE PHOTOGRAPHS

Cook Inlet Alaska Methane Pipeline Leak
Water Quality Sampling Report: Week 6

Job No: 105.00874.17021

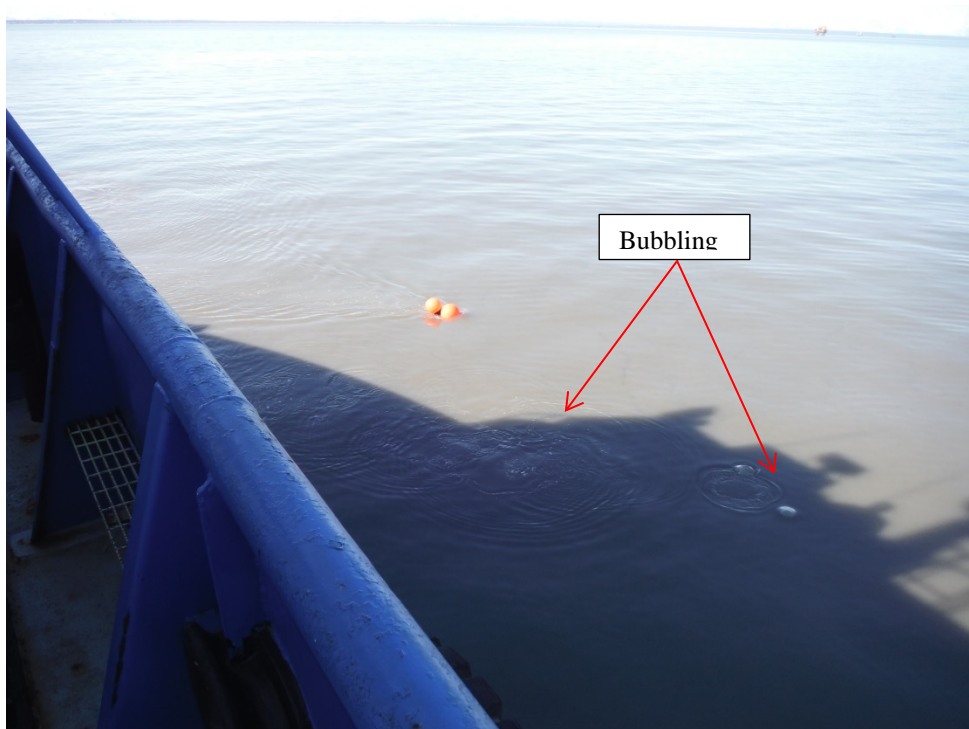


Photo 3:

During slack tide between Drift #1 and Drift #2 the temporary clamp was removed from the leak to install the permanent clamp; the permanent clamp was not completely installed (tightened) prior to Drift #2, and there was some gas leakage. Bubbling was seen on the water surface around the dive buoys placed near the MRP.

Date:
4/19/2017



Table A-1: Water Quality Instrumentation Buoy Summary

Instrument Name	Parameters Measured	Measurement Unit	Measurement Frequency	Frequency Reported, Plotted on Data Analysis Figures	Notes
PME MiniDOT	Temperature	degrees Celsius (°C)	Once per minute	Once per minute	Unable to record at higher frequencies
	Dissolved Oxygen	milligrams per liter (mg/L)			
Pro-Oceanus MiniCO2 (0-1000ppm)	Partial pressure of CO2 in detector	Parts per million by volume (ppmv)	Once per 4 seconds	Once per 4 seconds	Note this is measured as a gaseous phase concentration, which is then converted to the surrounding aqueous concentrations.
	Detector total pressure	millibars			
	Detector temperature	degrees Celsius (°C)			
Pro-Oceanus MiniCH4 (two instruments utilized, with differing ranges 0-1% and 0-100%)	Partial pressure of CH4 in detector	Volume ratio (%)	Once per 4 seconds	Once per 4 seconds	Note this is measured as a gaseous phase concentration, which is then converted to the surrounding aqueous concentrations.
	Detector total pressure	millibars			
	Detector temperature	degrees Celsius			
Seabird SBE 19plus V3 SeaCat	Depth	meters (M)	1 per 1/4 second	Once per 4 seconds	Collected data is average to 4 second reporting frequency
	Pressure	decibar (dm)			
	Conductivity	Siemens per meter (S/m)			
	Temperature	degrees Celsius (°C)			
	pH	Negative of the base 10 logarithm of the molar concentration of hydrogen			
	Optical backscatter (OBS)	Nephelometric Turbidity Units (NTU)			
	Dissolved Oxygen	milligrams per liter (mg/L)			
Garmin WAAS	Position	Latitude and longitude	Once per 2 seconds	Once per 2 seconds	

Table A-2: Summary of Water Quality Buoy Drifts

Buoy Type	Instrument(s) Depth (m)	Drift Name	General Tide Description	Proximity to Spring or Neap Tide ¹	Daily Tidal Range (High-Low) (m) ¹	Date	Release Location	Retrieval Location	Start of Data Collection (hr:min: sec) ²	End of Data Collection ²	Duration of Data Collection ²	Total Drift Distance (m) ²	Average Velocity (km/hr) ²	Minimum Distance to MRP (m)	Drift Elapsed Time at Minimum Distance to MRP (hh:mm:ss)	Wind (Knots/direction)	Wave Height (m)	Comments
Water Quality	Surface 7 Mid 7 Deep 12.5	D01-031817	Ebb	2 days before neap tide event	4.75	3/18/2017	60 46.622 N 151 25.718 W 60 45.356 N 151 27.877 W		14:52:20	15:09:55	0:17:35	1766	6.1	185.9	0:01:55	calm	0	CO2 sensor at 12.5 m unintentionally shut off, no data
Water Quality	Surface 2 Mid 7 Deep 12.5	D01-031917	Flood		3.84	3/19/2017	60 46.37 N 151 26.239 W 60 47.2 N 151 25.112 W		8:15:45	8:45:55	0:30:10	1930	3.8	44.9	0:05:10	15, SSW	0	
Water Quality	Surface 2 Mid 7 Deep 12.5	D02-031917	Flood			3/19/2017	60 46.35 N 151 25.878 W 60 46.921 N 151 25.878 W		9:09:40	9:36:55	0:27:15	901	2.0	165.8	0:14:40	15, SSW	0	SeaBird DO sensor stopped recording after 5 minutes, potential icing
Water Quality	Surface 2 Mid 7 Deep 12.5	D03-031917	Flood/Slack/Ebb		--	3/19/2017	60 45.527 N 151 23.097 W 60 45.527 N 151 23.097 W		9:58:00	11:57:30	1:59:30	3684	1.9	9.4	1:05:45	15, SSW	0.2	
Water Quality	Surface 2 Mid 7 Deep 12.5	D01-032317	Flood	3 days after neap tide event	3.08	3/23/2017	60 46.565 N 151 25.995 W 60 47.479 N 151 24.660 W		12:09:50	12:29:30	0:19:40	1675	5.1	71.2	0:00:05	0.4 SSW	0	SeaBird DO sensor clogged with ice, no 12.5 meter DO data
Water Quality	Surface 2 Mid 7 Deep 12.5	D02-032317	Flood			3/23/2017	60 46.393 N 151 26.33 W 60 47.755 N 151 26.248 W		13:10:40	13:54:55	0:44:15	3521	4.8	3.9	0:05:15	Calm	0	SeaBird DO sensor clogged with ice, no 12.5 meter DO data
Water Quality	Surface 2 Mid 7 Deep 12.5	D03-032317	Flood/Slack/Ebb		--	3/23/2017	60 46.781 N 151 25.884 W 60 46.537 N 151 26.248 W		15:29:55	16:24:30	0:54:35	675	0.36 (flood Tide) / 1.44 (Ebb Tide)	165.5	0:50:35	Calm	0	
Water Quality	Surface 2 Mid 7 Deep 12.5	D04-032317	Ebb		4.33	3/23/2017	60 46.695 N 151 25.870 W 60 45.403 N 151 27.936 W		16:31:35	17:18:55	0:47:20	3037	3.9	2.6	0:04:45	Calm	0	
Water Quality	Surface 2 Mid 7 Deep 12.5	D01-032917	Ebb	1 day after spring tide event	8.35	3/29/2017	60 46.725 N 151 25.624 W 60 44.322 N 151 29.507 W		11:07:24	11:45:36	0:38:12	5193	8.2	145.7	0:02:28	11, SW	0	Water pump for SeaBrid DO sensor clogged, no 12.5 m DO data
Water Quality	Surface 2 Mid 7 Deep 12.5	D02-032917	Flood		7.86	3/29/2017	60 46.216 N 151 26.734 W 60 49.189 N 151 21.302 W		15:54:32	16:46:56	0:52:24	6962	8.0	142.7	0:05:32	Calm	0	Water pump for SeaBrid DO sensor clogged, no 12.5 m DO data
Water Quality	Surface 0.8 Mid 5.8 Deep 11.3	D01-040517	Flood	1 day after neap tide event	3.57	4/5/2017	60 46.618 N 151 26.228 W 60 46.654 N 151 25.531 W		13:26:48	13:48:08	0:21:20	793	2.5	67.8	0:08:00	5-10, SSW	0.5	
Water Quality	Surface 0.8 Mid 5.8 Deep 11.3	D01-04057	Flood/Slack/Ebb		--	4/5/2017	60 46.546 N 151 26.247 W 60 46.361 N 151 26.350 W		13:55:32	14:52:40	0:57:08	1094	0.72 (flood Tide) / 1.08 (Ebb Tide)	10.4	0:18:28	5-10, SSW	0.5	
Water Quality	Surface 1.5 Mid 6.5 Deep 12	D01-041217	Ebb	1 day after spring tide event	7.29	4/12/2017	60 47.025 N 151 25.319 W 60 44.665 N 151 29.450 W		11:21:08	12:09:20	0:48:12	6367	7.9	61.1	0:09:12	Calm	0	
Water Quality	Surface 1.5 Mid 6.5 Deep 12	D02-041217	Flood		6.98	4/12/2017	60 46.071 N 151 25.526 W 60 47.572 N 151 25.366 W		15:31:36	15:57:32	0:25:56	3614	7.4	222.9	0:07:32	Calm	0	
Water Quality	Surface 1.5 Mid 6.5 Deep 12	D01-041917	Flood	neap tide	2.56	4/19/2017	60 46.039 N 151 26.973 W 60 48.26 N 151 23.275 W		9:32:48	11:18:36	1:45:48	5427	3.1	32.1	0:20:44	5, SSW	0.2	
Water Quality	Surface 1.5 Mid 6.5 Deep 12	D02-041917	Ebb		3.54	4/19/2017	60 46.944 N 151 25.555 W 60 45.000 N 151 28.091 W		13:05:44	14:16:16	1:10:32	4766	4.2	18.5	0:18:16	Calm	0.2	Temporary clamp was removed during this drift, bubbling observed

Notes:

1 - Tidal information is from NOAA Tide Predictions for East Foreland. StationId:TW1989

2-These times and corresponding statistics correspond to when the buoy instrument sensors reached deployment depth based on the CTD depth reading (12.5 meters) and when the instruments began to be retrieved at the end of the drift. This time interval corresponds to the time interval plotted on the figures.

FIGURE 1: WATER QUALITY MONITORING BUOY SCHEMATIC
(MARCH 23, 29 and APRIL 5, 12, 19, 2017)

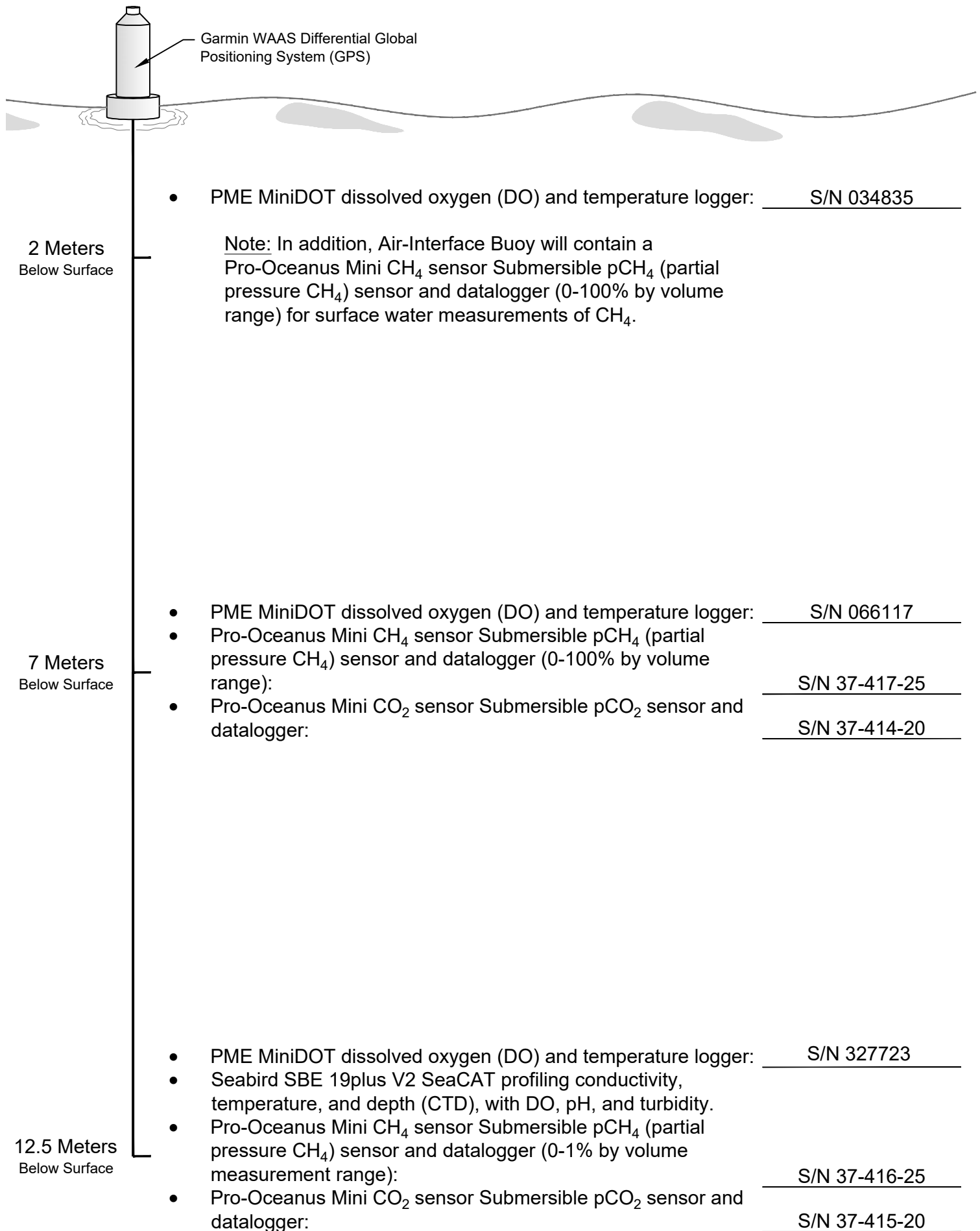


Figure A-9.1a: Buoy Drift #1, April 19, 2017
Dissolved Oxygen Measurements at 1.5, 6.5, 11.5 and 12 Meters Depth
Flood Tide

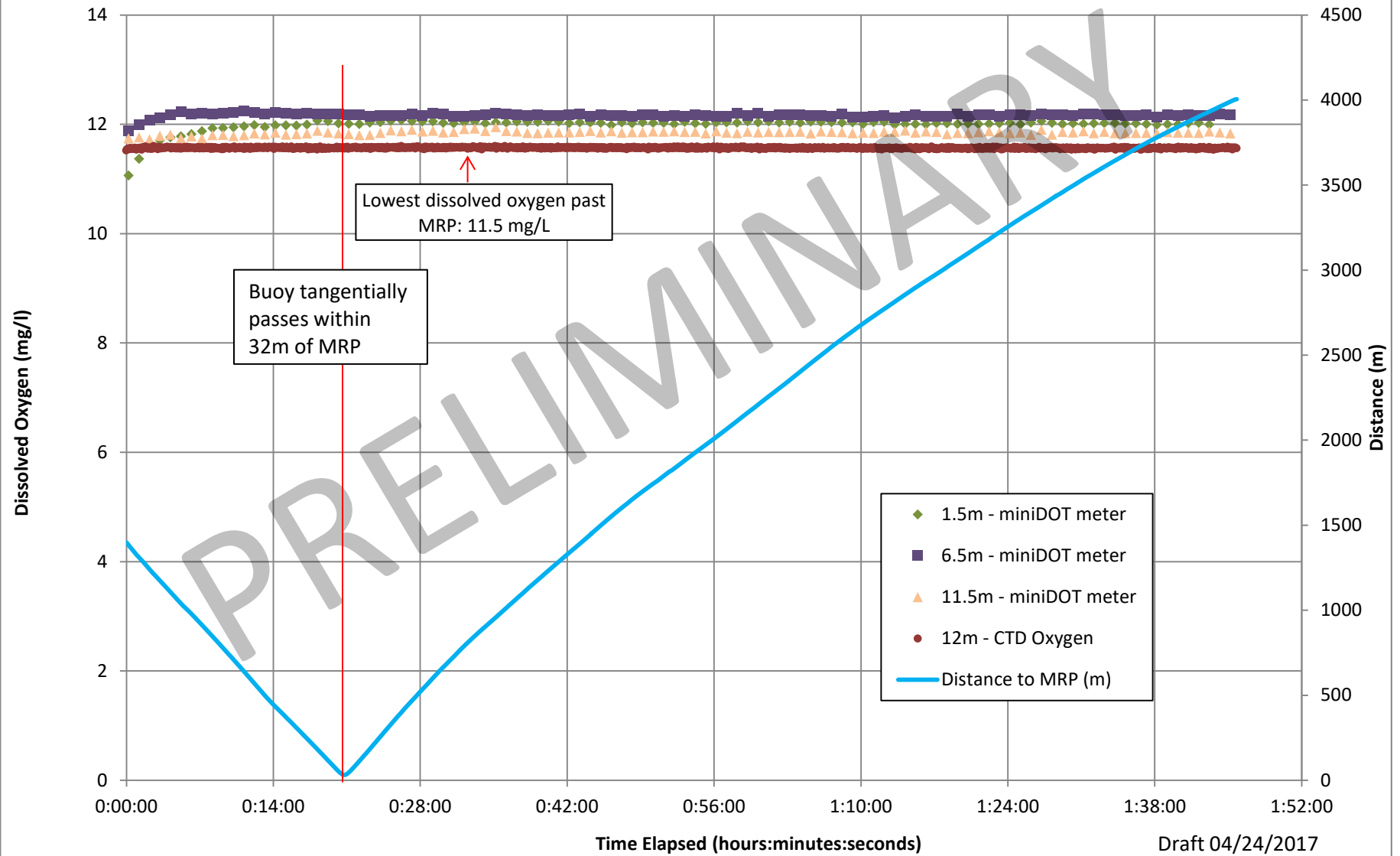


Figure A-9.1b: Buoy Drift #1, April 19, 2017
Dissolved Methane Measurements at 6.5 and 12 Meters Depth
Flood Tide

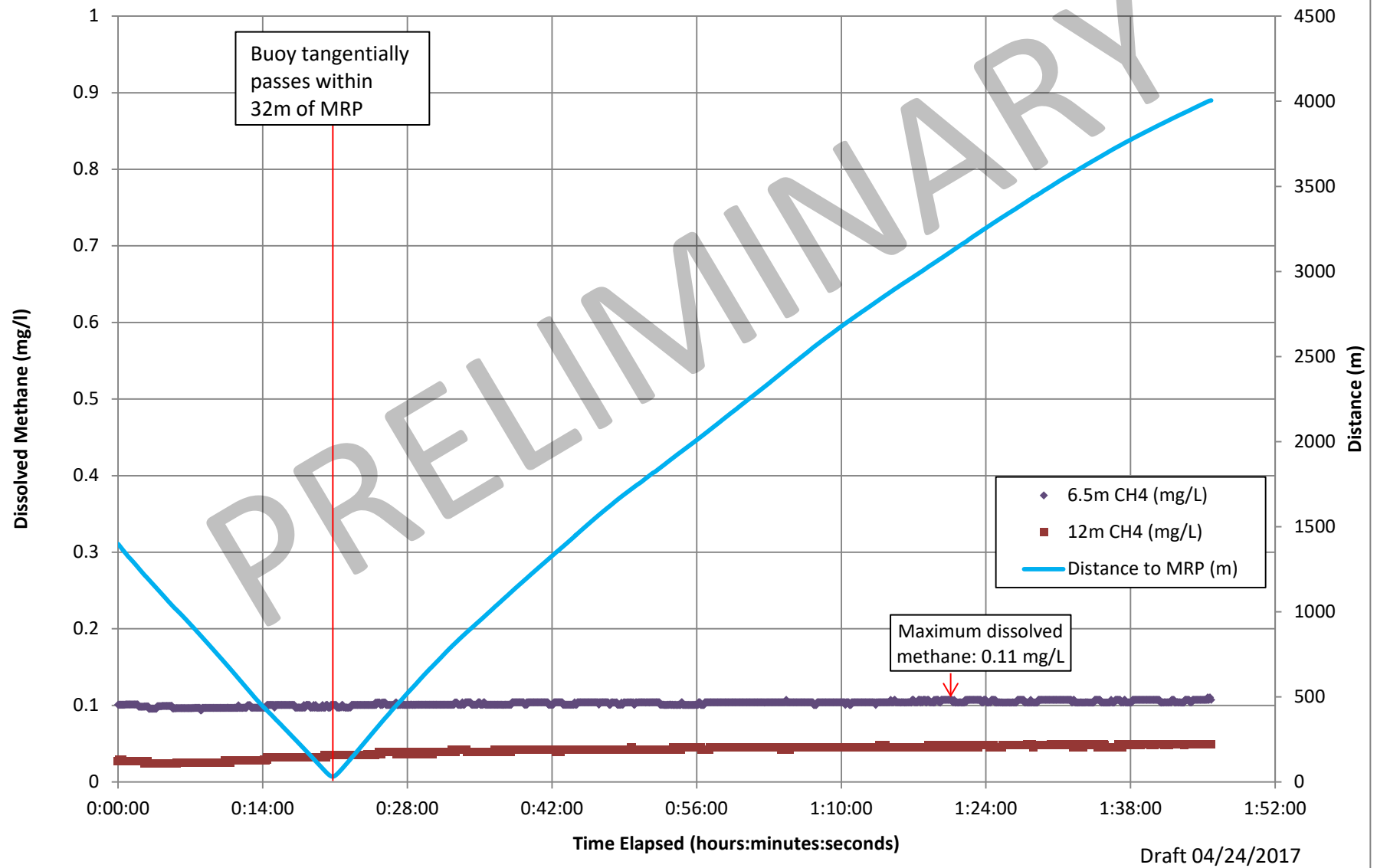


Figure A-9.1c: Buoy Drift #1, April 19, 2017
Dissolved Carbon Dioxide Measurements at 6.5 and 12 Meters Depth
Flood Tide

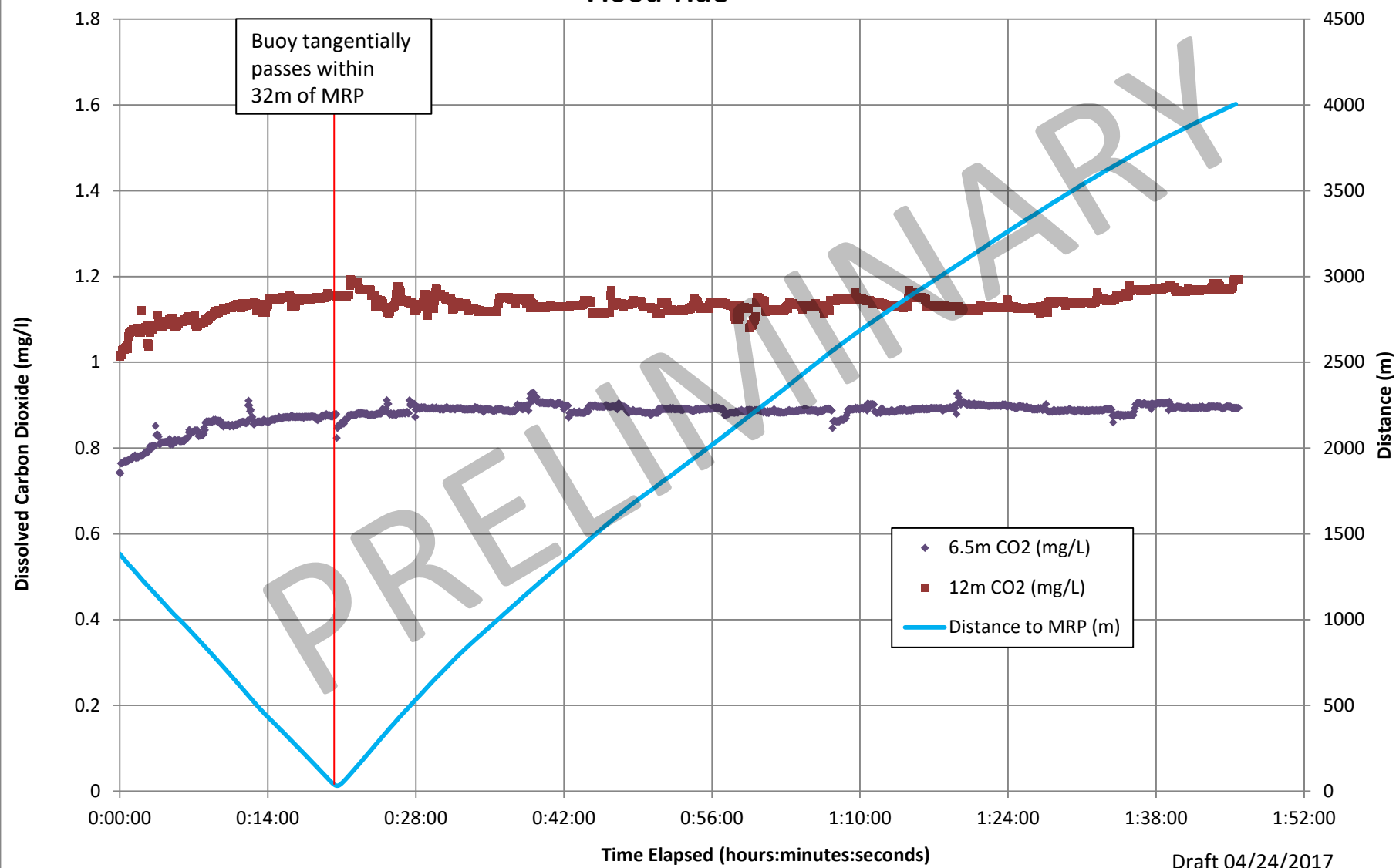


Figure A-9.2a: Buoy Drift #2, April 19, 2017
Dissolved Oxygen Measurements at 1.5, 6.5, 11.5 and 12 Meters Depth
Ebb Tide

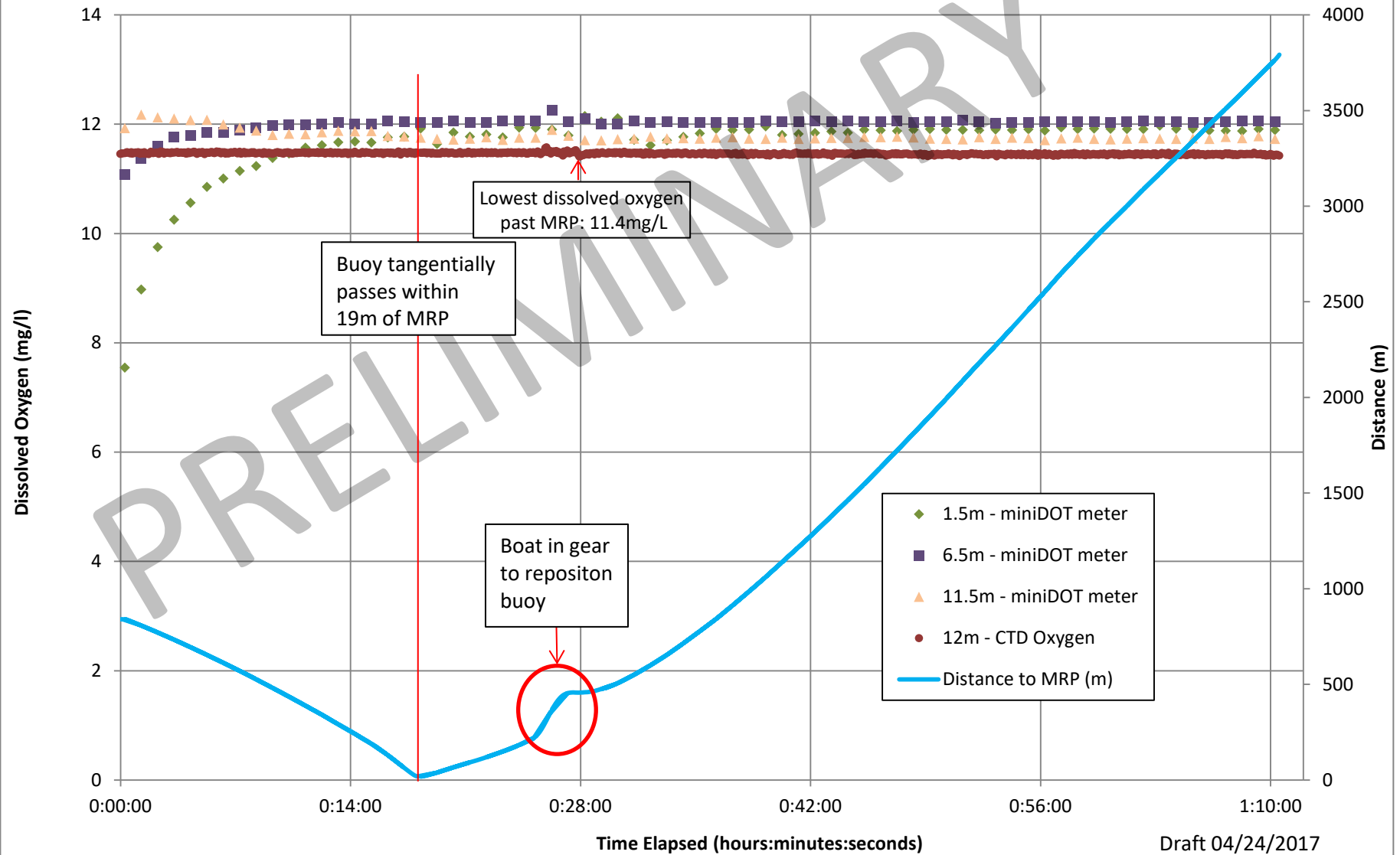
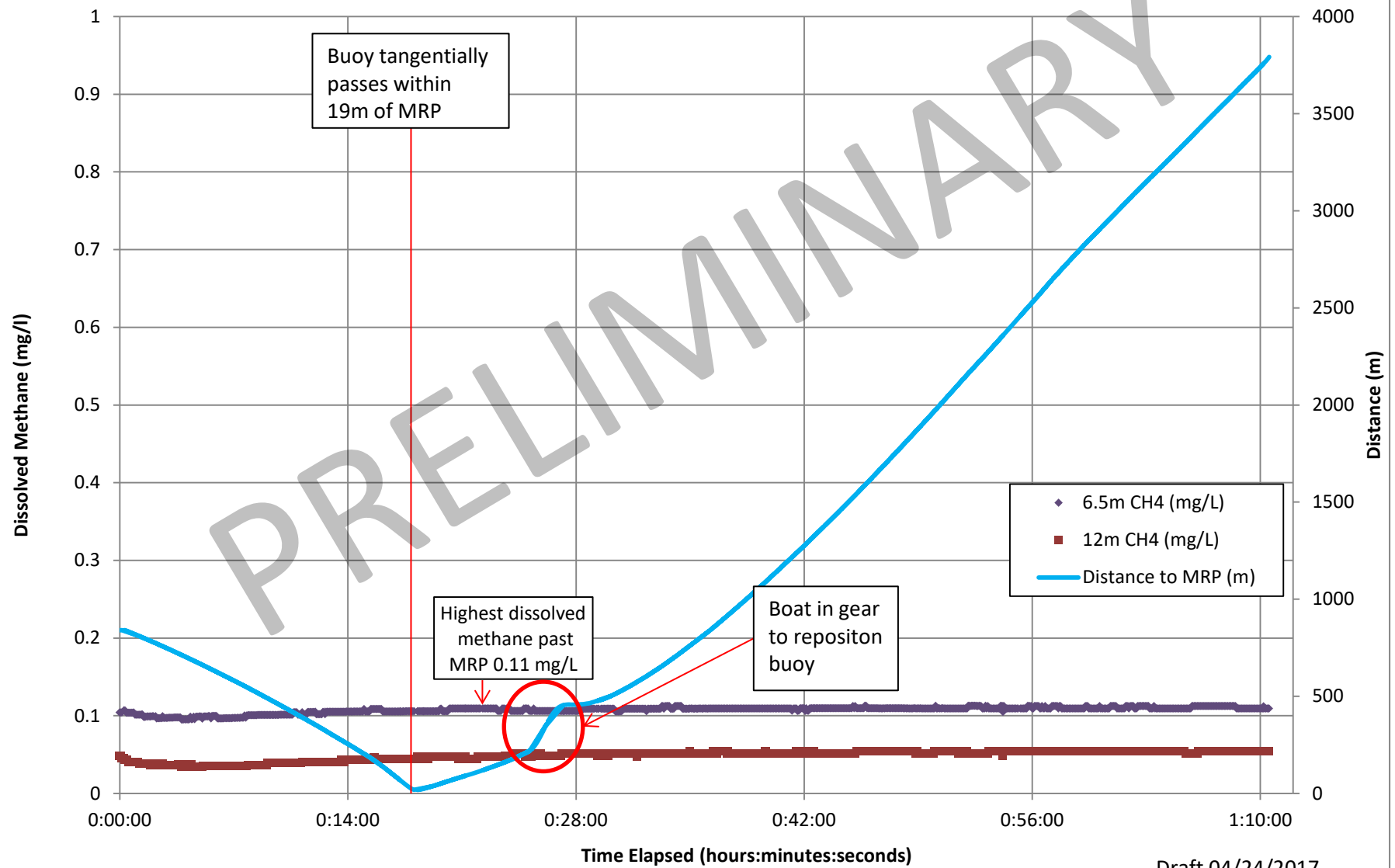
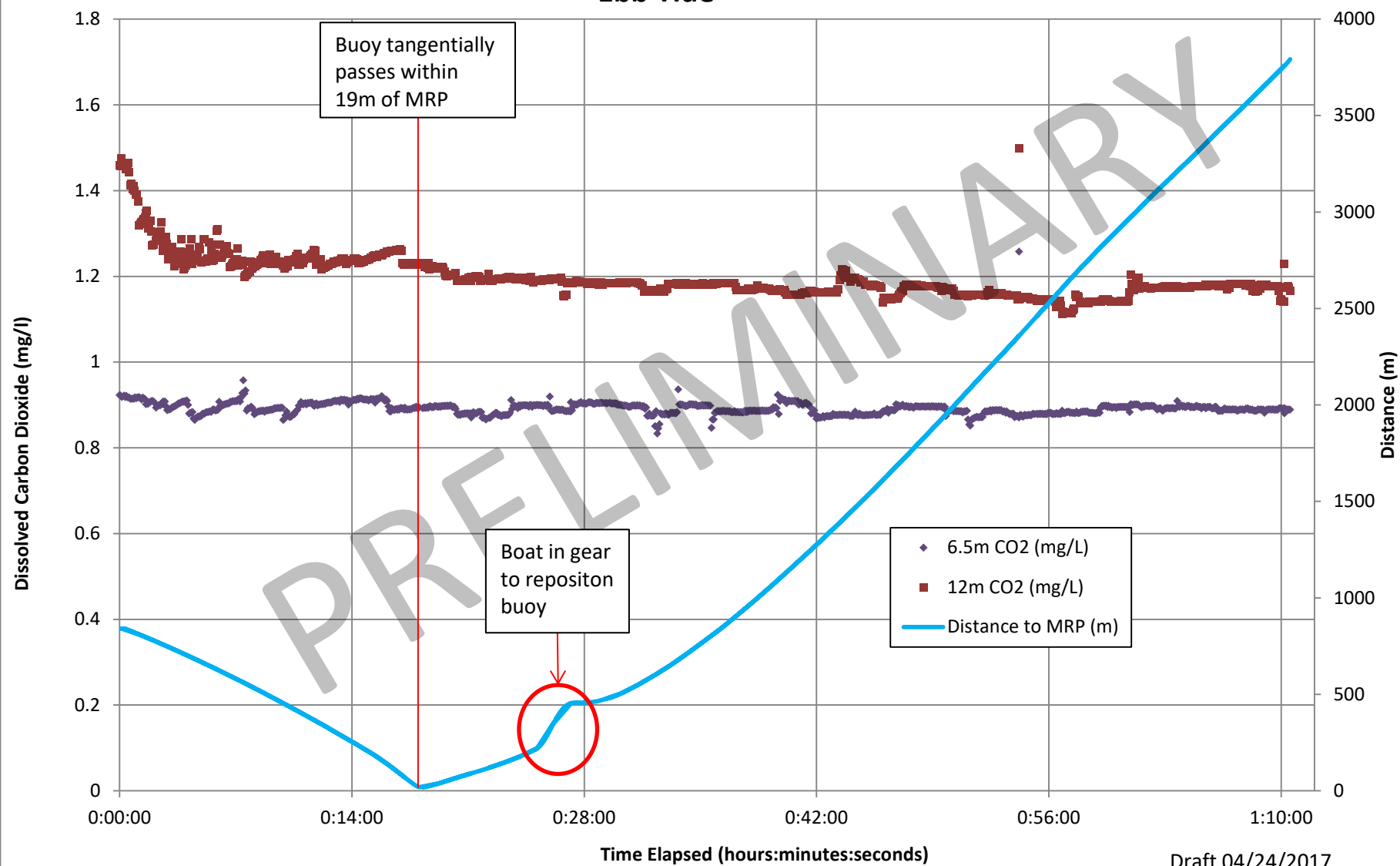


Figure A-9.2b: Buoy Drift #2, April 19, 2017
Dissolved Methane Measurements at 6.5 and 12 Meters Depth
Ebb Tide



Draft 04/24/2017

Figure A-9.2c: Buoy Drift #2, April 19, 2017
Dissolved Carbon Dioxide Measurements at 6.5 and 12 Meters Depth
Ebb Tide



ADDITIONAL SAFETY DOCUMENTATION

DAILY JOB REPORT

Directions: *Note problems encountered, RFI's, verbal communications with Client's representative, change order work performed.
Note any important events
Send a copy via fax to Nikiski office by 900 am.*

Work By PEAK:

The work performed by 1 PEAK employee (*Safety Professional*) was to provide HSE support to the personnel obtaining water samples for the Hilcorp Pipeline Gas Leak. HSE support included: JSA, pre-job safety meeting, permit to work, continuous monitoring of three 4-gas meters and continuous safety support.

Work by Subcontractors:

Work performed by 2 subcontractors, was that of water sampling by 1 SLR employee and 1 Kinetic Lab employees.

Safety Topic/Injury's	
1	Slips, trips and falls
2	Vehicle accidents
3	Hand and wrist injuries
4	Eye injuries
5	Respiratory issues
6	Head and neck injuries
7	Back and spine injuries
8	Fire and burns
9	Chemical exposure
10	Electrical safety
11	Confined space entry
12	Heavy machinery accidents
13	Weather-related incidents
14	Violence in the workplace
15	Psychological stress
16	Sexual harassment
17	Substance abuse
18	Occupational diseases
19	Unsanitary conditions
20	Violations of safety protocols
21	Improper lifting techniques
22	Lack of safety training
23	Wear and tear on equipment
24	Communication breakdowns
25	Overexertion
26	Use of power tools
27	Proximity to moving parts
28	Improper storage of materials
29	Failure to use safety equipment
30	Unsafe work practices
31	Obstructed walkways
32	Improper use of machinery
33	Lack of fall protection
34	Improperly maintained equipment
35	Unsafe work environment
36	Improper use of chemicals
37	Failure to follow safety instructions
38	Unsafe handling of materials
39	Improper use of machinery
40	Lack of safety training
41	Wear and tear on equipment
42	Communication breakdowns
43	Overexertion
44	Use of power tools
45	Proximity to moving parts
46	Improper storage of materials
47	Failure to use safety equipment
48	Unsafe work practices
49	Obstructed walkways
50	Improper use of machinery
51	Lack of fall protection
52	Improperly maintained equipment
53	Unsafe work environment
54	Improper use of chemicals
55	Failure to follow safety instructions
56	Unsafe handling of materials
57	Improper use of machinery
58	Lack of safety training
59	Wear and tear on equipment
60	Communication breakdowns
61	Overexertion
62	Use of power tools
63	Proximity to moving parts
64	Improper storage of materials
65	Failure to use safety equipment
66	Unsafe work practices
67	Obstructed walkways
68	Improper use of machinery
69	Lack of fall protection
70	Improperly maintained equipment
71	Unsafe work environment
72	Improper use of chemicals
73	Failure to follow safety instructions
74	Unsafe handling of materials
75	Improper use of machinery
76	Lack of safety training
77	Wear and tear on equipment
78	Communication breakdowns
79	Overexertion
80	Use of power tools
81	Proximity to moving parts
82	Improper storage of materials
83	Failure to use safety equipment
84	Unsafe work practices
85	Obstructed walkways
86	Improper use of machinery
87	Lack of fall protection
88	Improperly maintained equipment
89	Unsafe work environment
90	Improper use of chemicals
91	Failure to follow safety instructions
92	Unsafe handling of materials
93	Improper use of machinery
94	Lack of safety training
95	Wear and tear on equipment
96	Communication breakdowns
97	Overexertion
98	Use of power tools
99	Proximity to moving parts
100	Improper storage of materials

JSA and permit to work were completed for this job. Copy of JSA/permit to work is attached with this daily job report.

Comments:

Time line of events for this job are attached in a word document to this daily job report.

Supervisor _____ Safety Professional _____
Signature _____

to Report No. 7

Peak Job No. 23054 Date 4/19/2017

Job Name HSE support for water sampling for Gas
Pipeline Leak

[illegible]

The follow is a list of events that took place for the Hilcorp pipeline gas leak air water interface sampling and acoustic testing on Sunday 4-19-2017:

0630 – JSA and pre-job safety meeting completed

0730 – Beluga Whales spotted 100 meters off OSK dock. Notified Leonard Dickerson

0800 – Vessel Crew change out

0830 – Depart Port aboard the Resolution owned and operated by OMSI

0830 – Weather noted: Clear, wind at 2 knots, calm seas and temperature at 29* F. Ice conditions were very clear.

0845– Three 4-gas meters were taped to wooden mop handles and taped to the railings of the vessel. The height of all the gas meters ranged between 5'6" and 6'0". One was placed at the bow, one was placed towards the front deck on the portside of the vessel and one was placed mid-deck on the starboard side of the vessel. The monitors were turned on at this time.

0930 – First water sample buoy with 0% LEL on gas meters. (side of vessel)

1145– Meters turned off and waiting for 90 minutes for dive team to work on pipe.

1308 – Meters turned back on

1308 – Second water sample buoy with 0% LEL on gas meters. (side of boat)

1422 – Monitors off and headed back to port.

1430 – Arrived to port and close out of Permit to Work.

There were no injuries/incidents and safety was a focus for all personnel performing today's tasks. Proper use of safety toe boots, gloves and life vests were noted throughout all tasks.

HILCORP ALASKA, LLC: JOB SAFETY ANALYSIS (JSA)

JOB STEPS (Describe and number each step)		POTENTIAL HAZARDS ASSOCIATED WITH EACH JOB STEP (Identify each hazard with a CAPITAL letter)		CORRECTIVE ACTION(S) (Identify responsible person with initials)		
1	Travel to location retrieval of equipment, redployment of equipment travel to port	A	Heavy seas/wind - fall overboard wind burts, items moving, falls cool temps - frostbite, skin eye irritation, cold exposure Dangerous atmosphere, contact w/ increased LEL%	a b c	Hand rails, flotation device pilot data, captain discretion non-slip foot wear put items away/store items cold gear/protocol continuous monitoring with 3 4-gas meters	JN Capt JN JN JN
2	Rigging of equipment	A	Pinch, crush, cuts	a	Identify pinch points Communicate pinch points Cut resistant gloves Inspect equipment prior to use. proper training.	JN JN JN
3	Deployment and retrieval of equipment	A	Falls over board	a	Life vest near open water Follow capt request, tie off communication, eye of sight of equipment moving	JN JN JN
4	Awareness of protocols used by deck hands.	a	Captain may require different times to wear PPE of tie off. That only pertains to his staff.	a	Follow all previous plans to include tying off on railing if needed	JN JN JN

This JSA should be reviewed by everyone involved with the project. This JSA is not considered complete until everyone involved with the project signs below, along with any other contributing personnel. Should personnel need more space to complete the JSA, or if new hazards are presented due to changing conditions, an additional JSA form should be utilized and attached to these pages. Make notes on how the task can be performed in an even safer manner, and keep JSA's on file so that they may be referenced in the future should a similar project be conducted.

INVOLVED PERSONNEL SIGNATURES:

Environmental Sampler

Environmental Sampler

Safety Professional



Permit to Work (PTW) / Job Safety Analysis (JSA)

JSA's should be considered prior to any work. JSA's are mandatory for that require the use of Hilcorp Alaska's Permit to Work system.

DATE: 4-19-2017 START TIME: 0630 END TIME: 1830

FACILITY: N/A LOCATION / AREA: Cook Inlet ms6

PROJECT DESCRIPTION: methane pipeline leak water sampling

CONFINED SPACE ENTRY REQUIREMENTS:

The operations team and work team have evaluated the confined space and agree that none of the following conditions exist and a Confined Space Entry Permit is not required. Operations Lead or Permit Issuer Initials: _____

- 1) The space does not contain any type of hazardous atmosphere.
- 2) The space does not have the potential to entrap or engulf an entrant.
- 3) The space does not contain any other serious safety or health hazard.

Emergency Contact Info

Area controller: Vessel Captain
Safety: Hilcorp Safety Professional
Environmental Construction Rep: Hilcorp Environmental Specialist
Emergency Muster Area: Deck of vessel

GENERAL SAFETY CONSIDERATIONS

	Y	N	N/A
Are Standard Operating Procedures available and being followed?	<input checked="" type="checkbox"/>		
Do personnel have proper tools/equipment for the job?	<input checked="" type="checkbox"/>		
Are tools/equipment in good condition/inspected?	<input checked="" type="checkbox"/>		
Is there a planned escape route?	<input checked="" type="checkbox"/>		
Are personnel aware of the location of First Aid supplies?	<input checked="" type="checkbox"/>		
Have the emergency notification procedures been covered with employees?	<input checked="" type="checkbox"/>		
Has Hilcorp EH&S been notified 72 hrs. prior to Confined Space Entry projects?			<input checked="" type="checkbox"/>
Are all personnel trained/ certified to use equipment/ engage in task?	<input checked="" type="checkbox"/>		
Are all personnel donning appropriate PPE?	<input checked="" type="checkbox"/>		
Will this project create a hazard to others in the vicinity?			<input checked="" type="checkbox"/>
Do all personnel understand correct incident/spill reporting?	<input checked="" type="checkbox"/>		

Additional Permits Required: ☐ Hot Work ☐ Confined Space Entry ☐ Isolation of Hazardous Energy ☐ Excavation & Trenching

HAZARD CONTROL INDEX (THIS LIST IS NOT EXHAUSTIVE)

SLIPS/TRIPS/FALLS <input checked="" type="checkbox"/> Clean surfaces (housekeeping) <input checked="" type="checkbox"/> Barricade <input checked="" type="checkbox"/> Focus on path <input type="checkbox"/> Use alternate route <input type="checkbox"/> Relocate equipment/project <input type="checkbox"/> Examine scaffolding condition <input type="checkbox"/> Examine handrail condition FALLS FROM ELEVATION (4'+) <input type="checkbox"/> Move work to ground level <input type="checkbox"/> Ladder inspections <input type="checkbox"/> Proper ladder material/placement <input checked="" type="checkbox"/> Additional PPE (Fall Protection) <u>Brails</u>	PINCH POINTS/SHARP OBJECTS <input checked="" type="checkbox"/> Proper guarding <input checked="" type="checkbox"/> Proper body placement FIRE/EXPLOSION <input type="checkbox"/> Permitting <input checked="" type="checkbox"/> Air testing/monitoring <input type="checkbox"/> Remove combustible/flam materials <input type="checkbox"/> Fire watch <input type="checkbox"/> Fire extinguishers <input type="checkbox"/> Additional PPE HIGH NOISE LEVELS <input type="checkbox"/> Relocate work <input type="checkbox"/> Additional PPE (Hearing protection etc.)	ENERGIZED EQUIPMENT <input checked="" type="checkbox"/> Guarding <input checked="" type="checkbox"/> Proper body placement <input checked="" type="checkbox"/> No loose clothing REPETITIVE MOTION <input type="checkbox"/> Proper technique/tools <input type="checkbox"/> Ask for assistance <input type="checkbox"/> Work/rest schedule PRESSURE <input type="checkbox"/> Communication <input type="checkbox"/> Barricading <input type="checkbox"/> Shielding <input type="checkbox"/> Proper body placement <input type="checkbox"/> Block & bleed protocol	ELECTRICAL SHOCK <input type="checkbox"/> Testing <input checked="" type="checkbox"/> Grounding <input type="checkbox"/> Equipment shielding/condition <input type="checkbox"/> GFCI's <input type="checkbox"/> Examine electrical clearances LIFTING/PULLING/PUSHING <input checked="" type="checkbox"/> Utilize right tools for job <input checked="" type="checkbox"/> Proper technique <input checked="" type="checkbox"/> Smaller/lighter loads <input checked="" type="checkbox"/> Examine path <input type="checkbox"/> Use alternate route <input type="checkbox"/> Work rest schedule	LOCK-OUT/TAG-OUT CONDITIONS <input type="checkbox"/> Electrical isolation <input type="checkbox"/> Pressure isolation <input type="checkbox"/> Energized equipment isolation <input type="checkbox"/> Fire/explosion isolation HAZARDOUS CHEMICALS <input type="checkbox"/> Consult MSDS <input type="checkbox"/> Label/store containers correctly <input type="checkbox"/> Spill prevention considered <input type="checkbox"/> Additional PPE (Goggles etc.) ATMOSPHERIC <input type="checkbox"/> Respirators <input checked="" type="checkbox"/> Testing/monitoring
---	---	---	--	---

WORK TEAM LEADER (print): Environmental Sampler Signature: Environmental Sampler
PERMIT APPROVER (print): Safety Professional Signature: Safety Professional
AREA CONTROLLER (print): Vessel Captain Signature: Vessel Captain

Revalidation or Extension Time (4 Hour Max):

Permit Approver (print): _____ Time: _____
Signature: _____

Close Out Signature: Environmental Sampler
Work Team Leader: 11/2 Time: 14:30
Area Controller: Vessel Captain Time: 14:35